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CHEMISTRY TESTS

Test Name	Synonyms	Panels	Clinical Significance
% Saturation		Vet Iron Panel	Percent Saturation is calculated from Iron and TIBC and is used to assess the body's iron status. It may be decreased in anemia.
Alanine Aminotransferase	ALT, Glutamic-Pyruvic Transaminase, SGPT, GPT, Alanine Transaminase	Vet BMP, Vet CMP, Vet Liver Panel	ALT may increase due to hepatocellular damage, muscle damage, and hyperthyroidism.
Albumin	ALB	Vet BMP, Vet CMP, Vet Liver Panel, Vet Renal Panel	Albumin may be increased due to dehydration and may be decreased due to overhydration, severe congestive heart failure (with edema), protein-losing nephropathy, protein-losing enteropathy, hemorrhage, burns, dietary protein deficiency, malabsorption, some viral conditions (especially in horses), and liver failure.
Alkaline Phosphatase	ALP, Alk Phos, Alkp	Vet BMP, Vet CMP, Vet Liver Panel	ALP may increase due to increased bone deposition, liver damage, hyperthyroidism, biliary tract disease, intestinal damage, Cushing's disease, corticosteroid administration, barbiturate administration, and generalized tissue damage (including neoplasia).
Amylase	Amy		Amylase increases in acute pancreatitis in dogs and in chronic renal dysfunction. Amylase is not a useful indicator of pancreatitis in cats.
Anion Gap		Vet CMP, Vet Electrolyte Panel, Vet Renal Panel	The anion gap is calculated using the results of an electrolyte panel. It reflects the difference between the positively charged ions and the negatively charged ions. An abnormal anion gap is non-specific but can suggest certain kinds of metabolic or respiratory disorders or the presence of toxic substances.
Aspartate Amino Transferase	AST, Serum Glutamic-Oxaloacetic Transaminase, SGOT, GOT, Aspartate Transaminase	Vet BMP, Vet CMP, Vet Liver Panel	AST increases in both muscle and liver damage and is also reported to increase in hypothyroidism.
B12, Vitamin	Cobalamin		B12 is necessary for DNA synthesis. Deficiency causes inhibited nuclear maturation and division and may be due to diet (rare) or poor absorption from the GI tract.
Bicarbonate	Total CO ₂ , TCO ₂ , Carbon Dioxide Content, CO ₂ Content, Bicarb, HCO ₃ ⁻	Vet CMP, Vet Electrolyte Panel, Vet Renal Panel	Total CO ₂ increases in metabolic alkalosis and decreases in metabolic acidosis.

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Bilirubin, Direct		Vet Liver Panel	Bilirubin increases due to fasting (benign effect in horses and squirrel monkeys, and may lead to hepatic lipidosis in cats), hemolytic disease (usually mild increase), liver dysfunction and biliary obstruction (intra- or extrahepatic). Hepatic and post-hepatic disorders are characterized by an increase in Direct Bilirubin.
Bilirubin, Total		Vet CMP, Vet Liver Panel	Bilirubin increases due to fasting (benign effect in horses and squirrel monkeys, and may lead to hepatic lipidosis in cats), hemolytic disease (usually mild increase), liver dysfunction and biliary obstruction (intra- or extrahepatic).
Blood Urea Nitrogen	BUN, Urea Nitrogen	Vet BMP, Vet CMP, Vet Renal Panel	Urea may be increased due to excess dietary protein, poor quality dietary protein, carbohydrate deficiency, catabolic states, dehydration, congestive heart failure, renal failure, blocked urethra, and ruptured bladder. It may be decreased due to low dietary protein, gross sepsis, anabolic hormonal effects, liver failure, portosystemic shunts (congenital or acquired), and inborn errors of urea cycle metabolism.
Calcium, Total	Ca	Vet CMP, Vet Renal Panel	Calcium increases due to dehydration (which is also associated with increased albumin), primary hyperparathyroidism (neoplasia of parathyroid gland), primary pseudo-hyperparathyroidism (neoplasms producing parathyroid hormone-related peptide or PRP, usually perianal adenocarcinoma or some form of lymphosarcoma), bone invasion of malignant neoplasms, thyrotoxicosis (uncommon), and overtreatment of parturient paresis. It decreases due to hypoalbuminemia, parturient paresis, oxalate poisoning, chronic renal failure (secondary renal hyperparathyroidism), acute pancreatitis (occasionally), surgical interference with parathyroid glands, and idiopathic (autoimmune) hypoparathyroidism.
Chloride	Cl	Vet CMP, Vet Electrolyte Panel, Vet Renal Panel	Chloride increases in acidosis, and in parallel with increases in sodium concentration. It decreases in alkalosis, vomiting (especially after eating), and in association with hyponatremia.
Cholesterol, Total		Vet Lipid Panel	Cholesterol increases due to fatty meals, hepatic or biliary disease, protein-losing nephropathy (and other protein-losing syndromes to some extent), diabetes mellitus, Cushing's disease, and hypothyroidism. It decreases in some cases of severe liver dysfunction, and occasionally in hyperthyroidism.
Cortisol			Cortisol is increased in Cushing's disease and may be the most frequent endocrinopathy in adult to aged dogs but is infrequent in other domestic animals. It is decreased in Addison's disease and is seen most commonly in young to middle-aged dogs and occasionally in horses.

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Creatine Kinase	CK		CK increases markedly in rhabdomyolysis and aortic thromboembolism.
Creatinine, Serum or Plasma	Creat, Blood Creatinine	Vet BMP, Vet CMP, Vet Renal Panel	Creatinine may be increased due to renal dysfunction, blocked urethra, and ruptured bladder. Creatinine decreases due to sample deterioration. Patients with a high muscle mass have high-normal creatinine concentrations, while patients with a low muscle mass have low-normal creatinine concentrations.
Folate	Folic Acid, RBC Folate, Folacin, Vitamin B9		Folate is needed for DNA and RNA synthesis and anemia associated with its deficiency is characterized as megaloblastic. Folate is destroyed by catabolic processes every day and levels decrease rapidly with deficient diets.
Gamma-Glutamyl Transferase	GGT, Gamma-Glutamyl Transpeptidase, GGTP, Gamma-GT, GTP	Vet CMP, Vet Liver Panel	GGT will increase in longer-term liver damage and is particularly useful in horses and ruminants.
Globulin, Calculated		Vet BMP, Vet CMP, Vet Liver Panel	Globulin is calculated from Albumin and Total Protein. It is used to aid in identifying the potential presence of inflammation or infectious disease.
Glucose		Vet CMP, Vet BMP	Glucose increases due to high-carbohydrate meals, sprint exercise, stress or excitement (including handling and sampling stress), glucocorticoid therapy, Cushing's disease, over-infusion with glucose/dextrose-containing IV fluids, and diabetes mellitus. It decreases due to insulin overdose, insulinoma, islet cell hyperplasia (uncommon), acetonemia/pregnancy toxemia, acute febrile illness, and idiopathically (in certain dog breeds).
Glucose, Estimated Average	eAG, Estimated Average Glucose		Estimated average glucose is calculated using the results of the Hemoglobin A1c to estimate average blood glucose levels over the last 2-3 months. This value is used to help determine increased risk of developing diabetes, to help diagnose diabetes and prediabetes, and/or to help monitor diabetes and to aid in treatment decisions.
High Density Lipoprotein	HDL	Vet Lipid Panel	HDL can be used to assess the risk of developing heart disease.
Iron, Total	Serum Iron, Serum Fe	Vet Iron Panel	Iron is necessary for hemoglobin formation. Deficiencies may be seen in blood loss and pregnancy.
Lactate Dehydrogenase	LDH, LD		LDH is not tissue-specific, and is found in a variety of tissues, including liver, heart and skeletal muscle. Its elevation is non-specific and requires further investigation.

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Lipase	LPS		Lipase increases in acute pancreatitis in dogs (longer half-life than amylase) and also occasionally in chronic renal dysfunction. Lipase is not a useful indicator of pancreatitis in cats.
Low Density Lipoprotein, Calculated	LDL-C	Vet Lipid Panel	LDL is calculated using Total Cholesterol, HDL, and Triglycerides. It is used to assess the risk of developing heart disease.
Magnesium	Mg, Mag		Magnesium increases are rarely seen, including during acute renal failure. It decreases in ruminants due to dietary deficiency, either acute (grass staggers) or chronic, and diarrhea (uncommon).
Phosphorus	P, PO4, Phosphate, Phos	Vet Renal Panel	Phosphorus increases due to renal failure (secondary renal hyperparathyroidism). Decreases are seen in some downer cows and as part of the stress pattern in horses and small animals.
Potassium	K	Vet CMP, Vet Electrolyte Panel, Vet Renal Panel	Potassium increases due to Addison's disease and severe renal failure (especially terminal cases). It decreases due to Conn's syndrome, chronic renal dysfunction, vomiting, diarrhea, and insufficient potassium provision during IV fluid therapy. Congenital hypokalemia occurs in Burmese cats.
Protein, Total	TP	Vet BMP, Vet CMP, Vet Liver Panel	Total Protein may be increased due to dehydration, chronic inflammation, and paraproteinemia. It may be decreased due to overhydration, severe congestive heart failure (with edema), protein-losing nephropathy, protein-losing enteropathy, hemorrhage, burns, dietary protein deficiency, malabsorption, and some viral conditions (especially in horses).
Sodium	Na	Vet CMP, Vet Electrolyte Panel, Vet Renal Panel	Sodium increases due to Conn's syndrome, restricted water intake, vomiting, and dehydration due to most causes. It decreases due to Addison's disease, loss of any high-sodium fluid such as found in some forms of renal disease, and insufficient sodium provision during IV therapy.
TIBC	Total Iron Binding Capacity	Vet Iron Panel	TIBC is calculated from Iron and UIBC and is used to assess the body's ability to transport iron in the blood and to help diagnose iron-deficiency. It may be decreased in anemia.
Total T3	Triiodothyronine, FRT3	Vet Thyroid Panel	This test is used to screen for thyroid disease, specifically hypothyroidism, in canines, and to monitor effectiveness of treatment of hypothyroidism. High levels may indicate autoantibodies.
Total T4	Thyroxine, FRT4	Vet Thyroid Panel	This test is used to screen for thyroid disease, specifically hypothyroidism, in canines, and to monitor effectiveness of treatment of hypothyroidism. High levels may indicate autoantibodies.

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Triglycerides	TRIG, TG	Vet Lipid Panel	Triglycerides can be used to assess the risk of developing heart disease.
Uric Acid	UA, Serum Urate		Increases in uric acid are seen in hepatic insufficiency. In birds excess amounts of uric acid and urates in tissue are seen in visceral gout.